

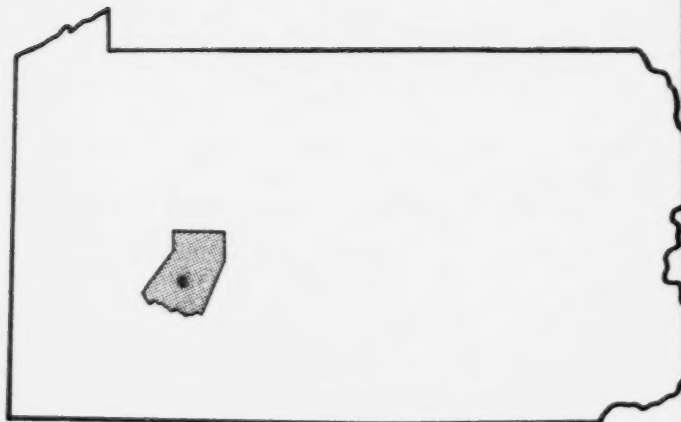
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FEM 1-209,48,738

FLOOD INSURANCE STUDY



**TOWNSHIP OF
WASHINGTON,
PENNSYLVANIA
INDIANA COUNTY**



APRIL 16, 1990



Federal Emergency Management Agency

COMMUNITY NUMBER - 421722

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Flood Insurance Study Effective Date: April 16, 1990

Flood Insurance Study Revised:

TABLE OF CONTENTS

	<u>Page</u>
1.0 <u>INTRODUCTION</u>	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgments	1
1.3 Coordination	1
2.0 <u>AREA STUDIED</u>	2
2.1 Scope of Study	2
2.2 Community Description	2
2.3 Principal Flood Problems	4
2.4 Flood Protection Measures	5
3.0 <u>ENGINEERING METHODS</u>	5
3.1 Hydrologic Analyses	5
3.2 Hydraulic Analyses	6
4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u>	7
4.1 Floodplain Boundaries	7
4.2 Floodways	9
5.0 <u>INSURANCE APPLICATIONS</u>	9
6.0 <u>FLOOD INSURANCE RATE MAP</u>	11
7.0 <u>OTHER STUDIES</u>	12
8.0 <u>LOCATION OF DATA</u>	12
9.0 <u>BIBLIOGRAPHY AND REFERENCES</u>	12

TABLE OF CONTENTS - continued

Page

FIGURES

Figure 1 - Vicinity Map	3
Figure 2 - Floodway Schematic	14

TABLES

Table 1 - Summary of Discharges	6
Table 2 - Regulatory Data	8

EXHIBITS

Exhibit 1 - Flood Profiles	
Crooked Creek	Panel 01P
McKee Run	Panel 02P
Sugarcamp Run	Panels 03P-05P
Exhibit 2 - Flood Insurance Rate Map Index and Street Index	
Flood Insurance Rate Map	
Exhibit 3 - Elevation Reference Marks	

FLOOD INSURANCE STUDY
TOWNSHIP OF WASHINGTON, INDIANA COUNTY, PENNSYLVANIA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Township of Washington, Indiana County, Pennsylvania, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1974.

The hydrologic and hydraulic analyses for this study were prepared by the Pittsburgh District of the U. S. Army Corps of Engineers (COE) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-86-E-2226, Project Order No. 2. This work was completed in April 1988.

1.3 Coordination

On May 31, 1985, an initial Consultation and Coordination Officer's (CCO) meeting was held with representatives of FEMA, the township, the Indiana County Planning Commission, and the COE (the study contractor) to determine the streams to be studied by detailed methods.

On April 4, 1989, a final CCO meeting was held with representatives of FEMA, the township, and the study contractor to review the results of the study.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Township of Washington, Indiana County, Pennsylvania. The Borough of Creekside is located within the Township of Washington, but is not included in this study. The area of study is shown on the Vicinity Map (Figure 1).

The following streams were studied by detailed methods: Crooked Creek, from a point approximately one mile downstream of the CSX Transportation crossing to the upstream corporate limits of the Township of Washington; McKee Run, from the corporate limits of the Borough of Creekside to a point approximately 1,425 feet upstream; and Sugarcamp Run, from its confluence with South Branch Plum Creek to a point approximately 1.2 miles upstream of State Route 954. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction through April 1993.

Dutch Run, Redding Run, South Branch Plum Creek, an unnamed tributary; and the remaining portions of Crooked Creek, McKee Run, and Sugarcamp Run were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and the Township of Washington.

2.2 Community Description

The Township of Washington is located in central-west Indiana County in central-western Pennsylvania. It is bordered by the Township of South Mahoning to the north, the Townships of Rayne and White to the east, the Townships of White and Armstrong to the south, and the Townships of Plum Creek and Cowanshannock to the west. The township has a land area of 37.7 square miles, and lies approximately 6 miles northwest of the Borough of Indiana. The population of the township was 1,602 in 1980, a 31 percent increase from 1,224 in 1970 (Reference 1).

Crooked Creek has a total drainage area of approximately 292 square miles at its confluence with the Allegheny River, which it joins on the left bank at river mile 40. It flows towards the south from its source in the Township of Rayne. The average bed slope of Crooked Creek through the Township of Washington is approximately 7 feet per mile. Local relief above the stream varies from a low of 1020 feet to an average hilltop elevation of 1,400 feet. The valley floor varies from 500 to 1,500 feet in width.

McKee Run has a total drainage area of approximately 14.2 square miles at its confluence with Crooked Creek, which it joins on the left bank at creek mile 40.5 at Creekside. It flows towards the southwest from its source in Grove Chapel. The average bed slope of McKee Run through the Township of Washington is approximately 12

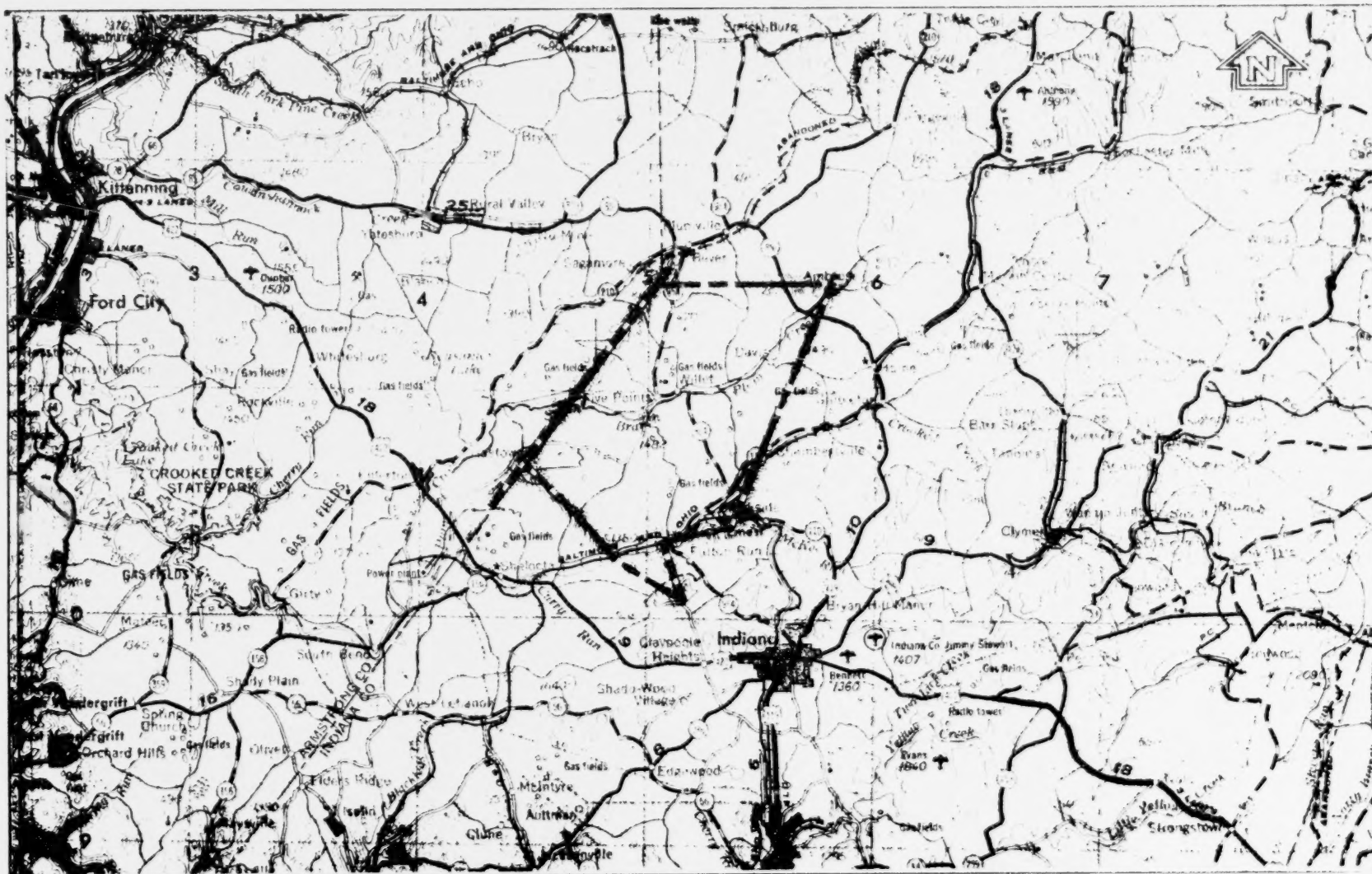


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF WASHINGTON, PA
(INDIANA CO.)

APPROXIMATE SCALE



VICINITY MAP

feet per mile. Local relief above the stream varies from a low of 1,025 feet to an average hilltop elevation of 1,400 feet. The valley floor varies from 800 to 1,000 feet in width.

Sugarcamp Run has a total drainage area of approximately 4.4 square miles at its confluence with South Branch Plum Creek, which it joins on the right bank at creek mile 6 at Five Points. It flows towards the south from its source near Beyer. The average bed slope of Sugarcamp Run within the Township of Washington is approximately 34 feet per mile. Local relief above the stream varies from a low of 1,050 feet to an average hilltop elevation of 1,400 feet. The valley floor varies from 400 to 900 feet in width.

The climate for the Township of Washington and its surrounding area is temperate, with the normal seasonal variation in temperature. The area is geographically located in a region of variable air-mass activity, and is subjected to polar and tropical, continental and maritime air-mass invasions. The weather is usually moderate, but is subject to frequent and rapid changes as a result of air-mass movement. Temperatures range from highs between 90 degrees Fahrenheit ($^{\circ}\text{F}$) and 99°F to lows below 9°F , with an average of approximately 50°F . Precipitation occurs mostly in the spring and summer months, with an average annual precipitation of approximately 43 inches as measured by the National Weather Service precipitation gage at Creekside, Pennsylvania.

2.3 Principal Flood Problems

Major floods may occur along Crooked Creek at various times of the year. Floods occurring in the winter months are usually the result of heavy rainfall and snowmelt. Floods occurring during the summer months are usually the result of high intensity, short duration storms.

The maximum flood of record along Crooked Creek occurred in July 1977. The following tabulation shows major floods of record on Crooked Creek as measured at the COE gaging station at Creekside. The gage zero elevation is at 1,017.3 feet.

<u>Date of Crest</u>	<u>Stage (feet)</u>	<u>Elevation (feet)</u>	<u>Discharge (cfs)</u>
July 1977	13.1	1,030.9*	5,500
June 1972	12.0	1,029.3	4,800
September 1972	11.0	1,023.3	4,000
February 1975	9.2	1,027.0	2,800

*Estimated from high-water marks

Major floods may occur on McKee Run or Sugarcamp Run at various times of the year. However, the primary flood period is usually in the spring or summer months. Most floods occurring in the Township of Washington would be the result of backwater from Crooked Creek during high-water periods.

2.4 Flood Protection Measures

There are no existing, authorized, or proposed flood control or related measures within or upstream of the Township of Washington that would reduce flood levels on Crooked Creek, McKee Run, or Sugarcamp Run.

Musser Forest, Dam PA. No. 60287 is located in the headwaters of McKee Run and is a water supply dam. It would have little effect in reducing floods on McKee Run within the Township of Washington.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. A flood event of a magnitude which is expected to be equaled or exceeded once on the average during any 100-year period (recurrence interval) has been selected as having special significance for floodplain management and for flood insurance rates. This event, commonly termed the 100-year flood, has a 1 percent chance of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting the community.

Natural discharge-frequency curves for Crooked Creek were developed by correlating data from recording gages located within the Crooked Creek Basin. The gages used in the analysis were the CGM gage at Creekside and the U. S. Geological Survey (USGS) gage at Idaho (No. 03038000). The relationships were analyzed following the log-Pearson Type III analysis outlined in USGS Bulletin 17P (Reference 2). A drainage area versus discharge relationship was then established for the basin. A comparison was made using the lower Allegheny River CSM relationship. The 100-year frequency flood was determined from this relationship.

There are no gages or flow records for McKee Run or Sugarcamp Run. The flow for the 100-year flood was developed using multiple regression formulas based on factors determined from a CGM study of

small streams in Pennsylvania, the Federal Highway Administration Circular No. 17, the USGS Bulletin No. 13, and the Penn State 17 Method (References 3, 4, 5, and 6). The 100-year flow was determined from the average of these methods.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 1, "Summary of Discharges."

TABLE 1 - SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (sq. miles)</u>	<u>PEAK DISCHARGE (cfs) 100-YEAR</u>
CROOKED CREEK		
At downstream corporate limits	68.6	9,800
MCKEE RUN		
At upstream corporate limits	14.1	3,080
SUGARCAMP RUN		
At its confluence with South Branch Plum Creek	4.4	1,120

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Cross-sectional data for McKee Run and Sugarcamp Run were obtained by field measurement. All bridges were field surveyed to obtain elevation data and structural geometry.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1) and the Flood Insurance Rate Map (Exhibit 2) where applicable.

Water-surface elevations of floods of the selected recurrence intervals for Crooked Creek were estimated through the use of past floods from which high-water marks, gaging station data, and discharge values are available and applicable to present stream conditions. The well-defined floods of September 14, 1972, February 24, 1975, and the moderate flow of December 14, 1973 were selected. The water-surface elevations versus corresponding discharge for each of the historical flood events were plotted on logarithmic paper at key rating locations along the stream. Rating locations were placed at points where the channel gradient changes significantly. Flood profiles were drawn showing extrapolated water-surface elevations for floods of the selected recurrence intervals at each of the selected rating locations.

water-surface elevations at reaches of the stream at regular intervals for McKee Run and Sugarcamp Run were computed using COE HEC-2 step-backwater computer program (Reference 7). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. The results of the water-surface computations are tabulated for the selected cross sections for each stream segment (Table 2). The water-surface elevations for McKee Run and Sugarcamp Run were computed using the slope-area method.

Channel roughness factors (Manning's "n") used in the hydraulic computations were assigned on the basis of photoaerial photos. The "n" value for McKee Run was 0.045, and the overbank "n" value was 0.060. For Sugarcamp Run, the channel "n" values ranged from 0.025 to 0.045, and the overbank "n" value was 0.080.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. For the streams studied in detail, the 100-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 with a contour interval of 20 feet (Reference 8).

For the streams studied by approximate methods, the 100-year floodplain boundaries were delineated using the Flood Hazard Boundary Map for the Township of Washington (Reference 9).

FLOODING SOURCE		STREAM CHANNEL		
CROSS SECTION	DISTANCE (FT)	WIDTH (FT)	DEPTH (FEET)	MEAN VELOCITY (FT/SEC)
RICKET RUN				
A	7176	62	1986	4.15
SUGARCAMP RUN				
A	220	30	625	4.80
B	1330	22	482	3.66
C	1960	26	432	3.03
D	6870	25	765	8.11
E	5317	15	274	2.67
F	5635	40	1005	6.15
G	7360	28	640	2.98
H	8965	31	381	1.66
I	10260	49	678	8.06
J	13230	21	330	3.02
K	15200	36	860	7.03

1 - Stream distance above mouth

TABLE 2	FEDERAL EMERGENCY MANAGEMENT AGENCY	
	TOWNSHIP OF WASHINGTON, PA (DELRAND COUNTY)	

LEFT OVERBANK			RIGHT OVERBANK			WATER
WIDTH FT	DEPTH FT	AREA SQUARE FEET	WIDTH FT	DEPTH FT	AREA SQUARE FEET	DEPTH FEET
50.2	1896	2.15				
58	22	0.97	51.2	1.1	1.02	51.2
76	252	1.95	117	9.1	11.7	102.1
139	527	1.7	8	5.2	1.17	107.4
17	175	0.43	6	30	1.8	11.2
36	95	1.24	100	1	11.24	1.4
31	62	0.19	1	2.4	1.8	10.2
71	367	0.18		1.1	1.7	1.7
70	154	1.11	1.3	2	2.6	2.6
103	602	1.76				2.6
135	730	1.96	1	1.4	1.4	14.14
46	152	1.19	1	1.0	1	11.1

REGULATORY DATA

The 100-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

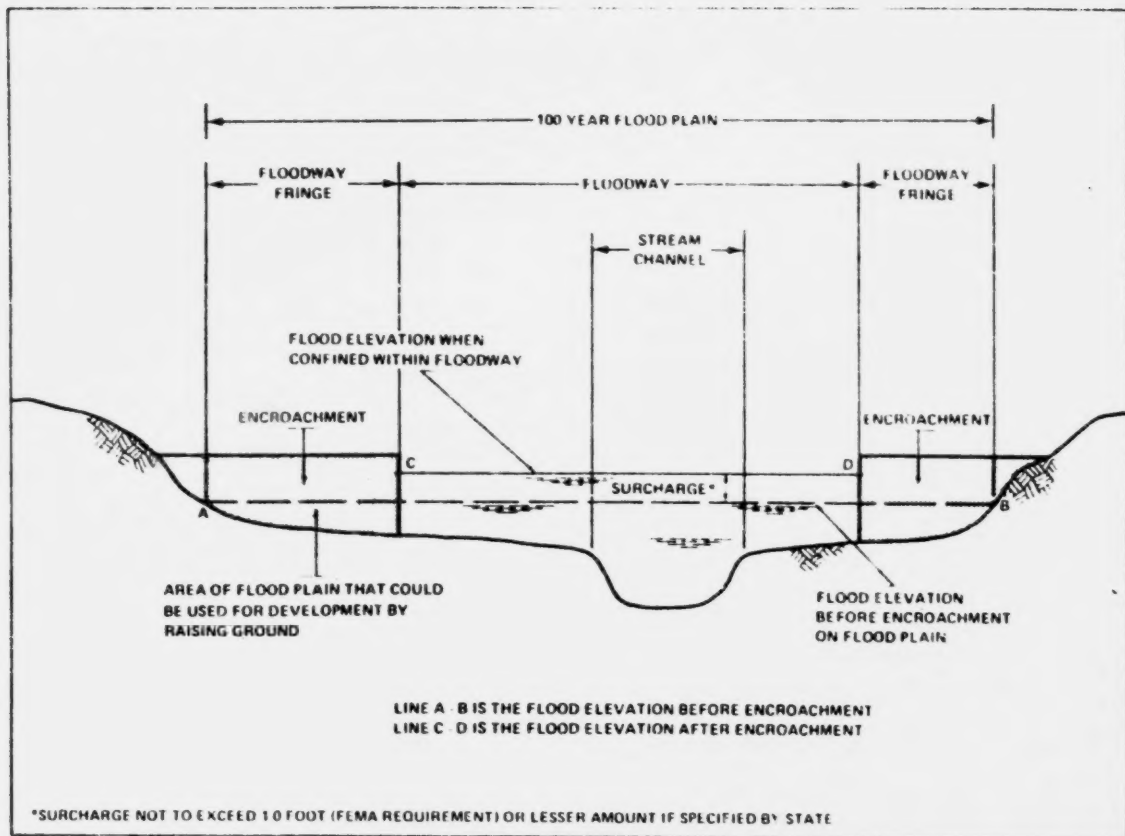
No floodways were calculated as part of this study.

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.



FLOODWAY SCHEMATIC

Figure 2

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplain. The locations of selected cross sections used in the hydraulic analyses are shown where applicable.

7.0 OTHER STUDIES

Flood Insurance Studies have been prepared for the Borough of Creekside and the Township of Armstrong (References 10 and 11). The results of this study are in exact agreement with the results of those studies.

Due to its more detailed nature, this study supersedes the Flood Hazard Boundary Map for the Township of Washington (Reference 9).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting FEMA, the Natural and Technological Hazards Division, Liberty Square Building (Second Floor), 105 South Seventh Street, Philadelphia, Pennsylvania 19106.

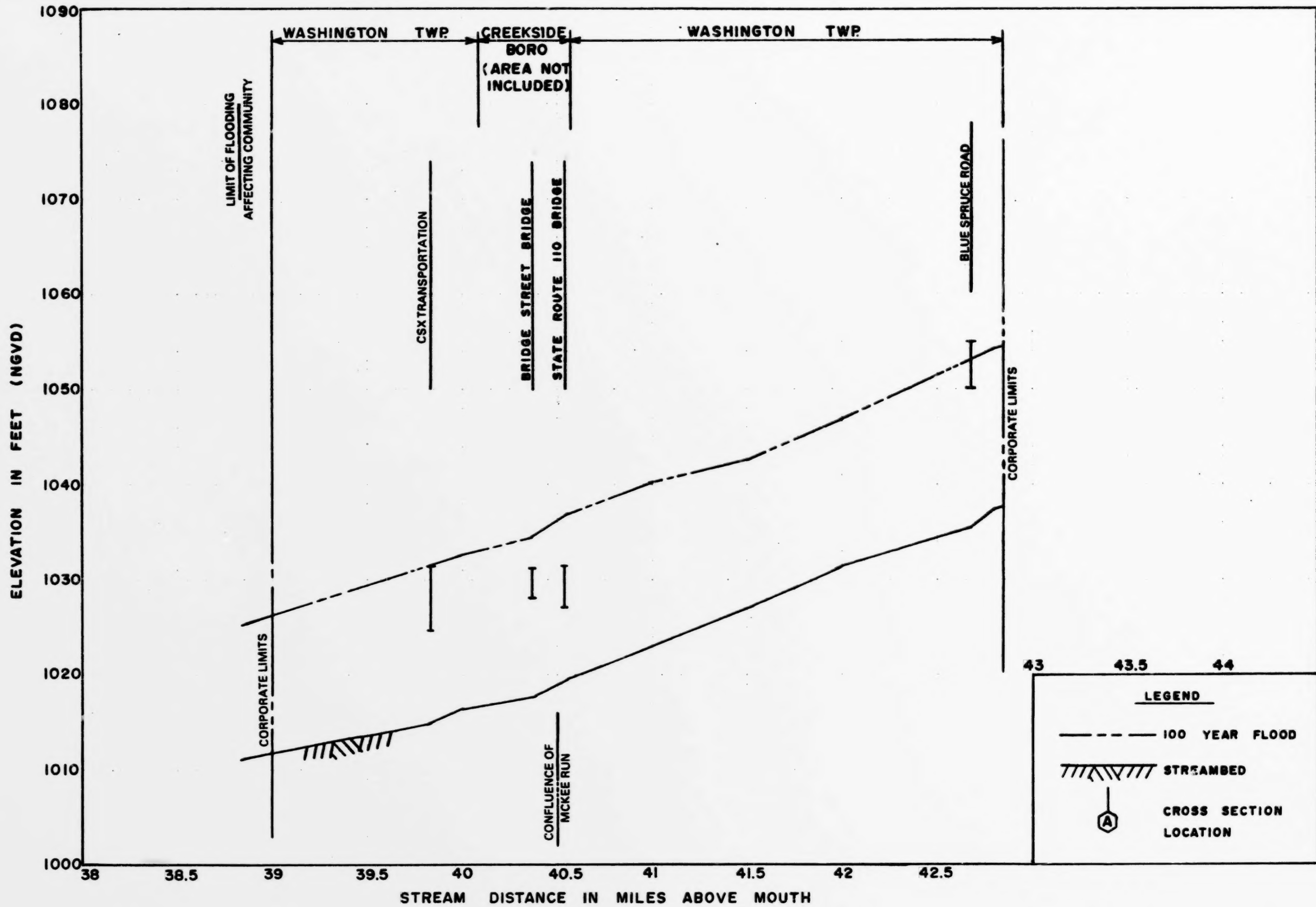
9.0 BIBLIOGRAPHY AND REFERENCES

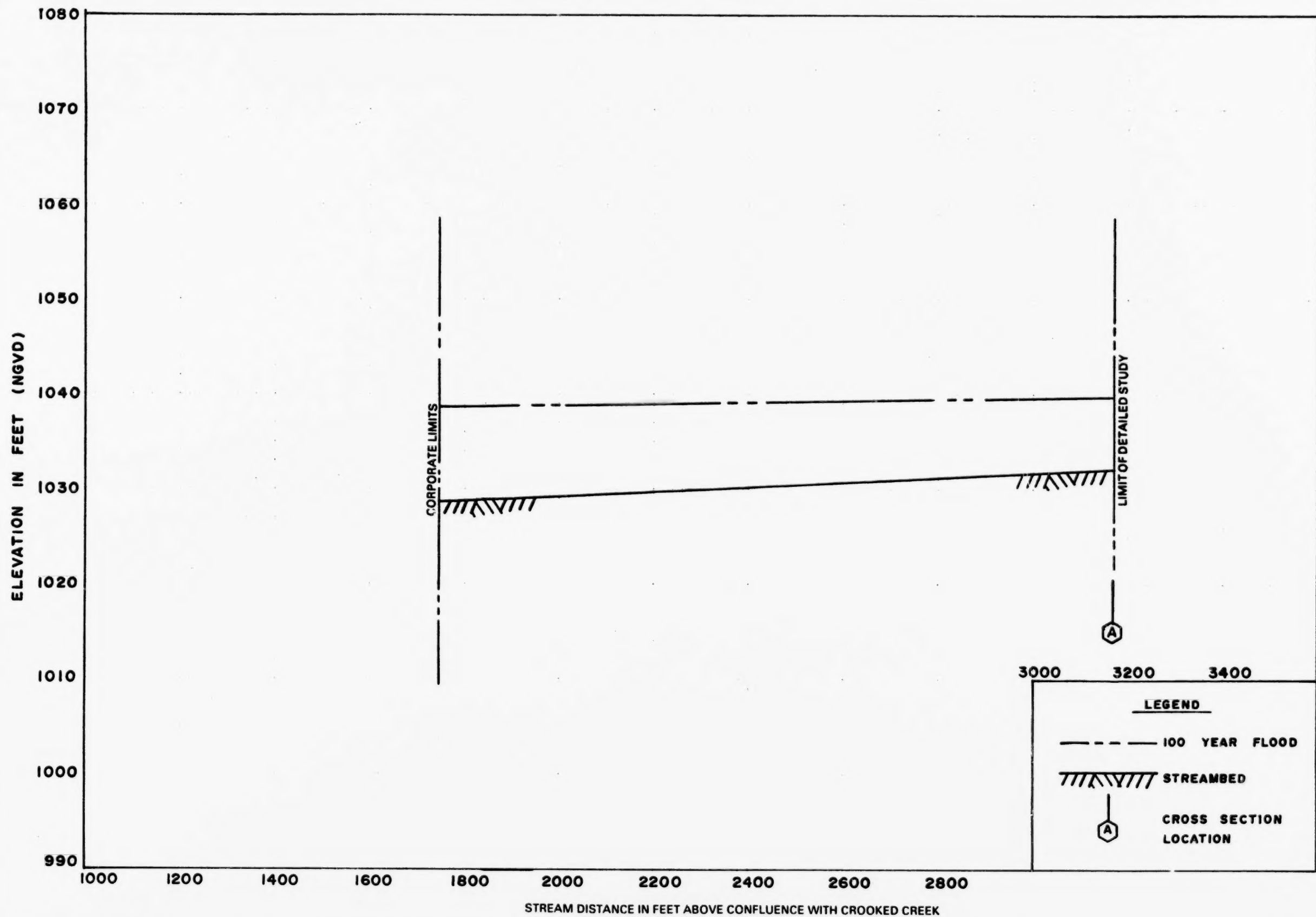
1. U. S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Pennsylvania, Washington, D. C., U. S. Government Printing Office, 1981.
2. U. S. Department of the Interior, Geological Survey, Office of Water Data Collection, Interagency Advisory Committee on Water Data, "Guidelines for Determining Flood Flow Frequency," Bulletin 17B, Reston, Virginia, Revised September 1981.
3. U. S. Army Corps of Engineers, Pittsburgh District, "Untitled Regression Data," Pittsburgh, Pennsylvania, 1975.
4. Federal Highway Administration, The Design of Encroachments on Floodplains Using Risk Analysis, Hydraulic Engineering Circular No. 17, Washington, D. C. October 1980.

5. U. S. Department of the Interior, Geological Survey, Harrisburg, Pennsylvania, and Department of Environmental Resources, Commonwealth of Pennsylvania, Water Resources Bulletin No. 13, Floods in Pennsylvania, Harrisburg, Pennsylvania, October 1977.
6. The Pennsylvania State University, Institute for Research on Land and Water Resources, PSU IV, Estimating Design Flood Peaks on Ungaged Pennsylvania Watersheds, April 1981
7. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Generalized Computer Program, Davis, California, November 1976, with updates.
8. U. S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 Feet: Ernest, Pennsylvania, 1963, Photorevised 1973; and Plumville, Pennsylvania, 1968, Photorevised 1973.
9. U. S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Township of Washington, Indiana County, Pennsylvania, December 27, 1974.
10. Federal Emergency Management Agency, Flood Insurance Study, Borough of Creekside, Indiana County, Pennsylvania, Washington, D. C., April 16, 1990.
11. Federal Emergency Management Agency, Flood Insurance Study, Township of Armstrong, Indiana County, Pennsylvania, Washington, D. C., December 5, 1989.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

<u>Reference Mark</u>	<u>FIRM Panel</u>	<u>Elevation (Feet NGVD)</u>	<u>Description of Location</u>
RM 1	07	1,029.05	USGS standard plug in center of downstream left bank abutment set in cut stone headwall of CSX Transportation bridge over Crooked Creek.
RM 2	07	1,053.15	L cut in top of upstream left bank concrete wing wall of Blue Spruce Road bridge over Crooked Creek.
RM 3	07	1,042.05	Chiseled square set on top of upstream right bank wing wall of Cavena Street bridge over McKee Run.
RM 4	03	1,059.76	Chiseled square set on top of downstream left bank headwall of State Route 205 bridge over Sugarcamp Run.
RM 5	03	1,104.92	PDH cap set on top of upstream left bank wing wall of State Route 954 bridge over Sugarcamp Run.





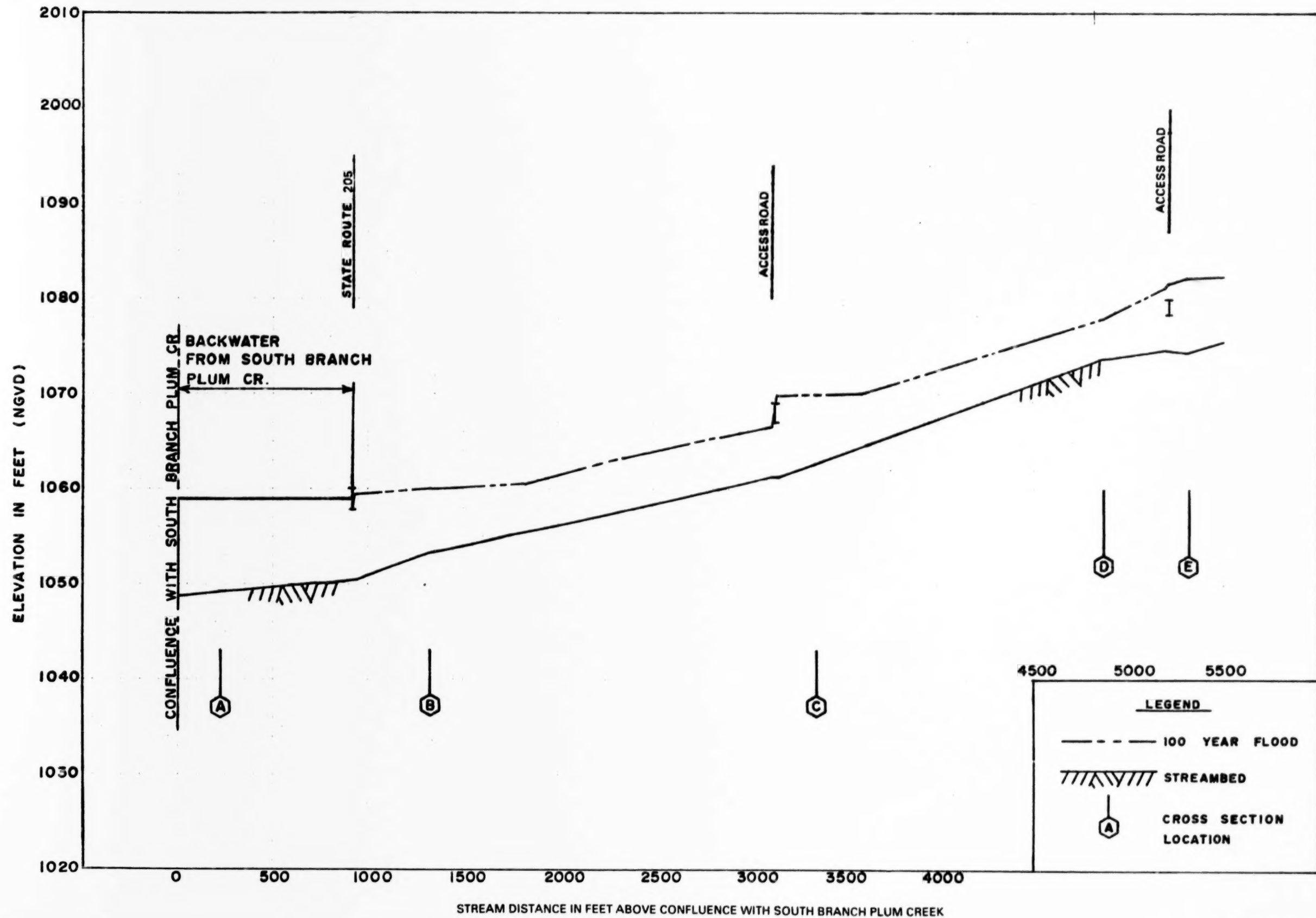
FLOOD PROFILES

McKEE RUN

**FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF WASHINGTON, PA
(INDIANA COUNTY)**

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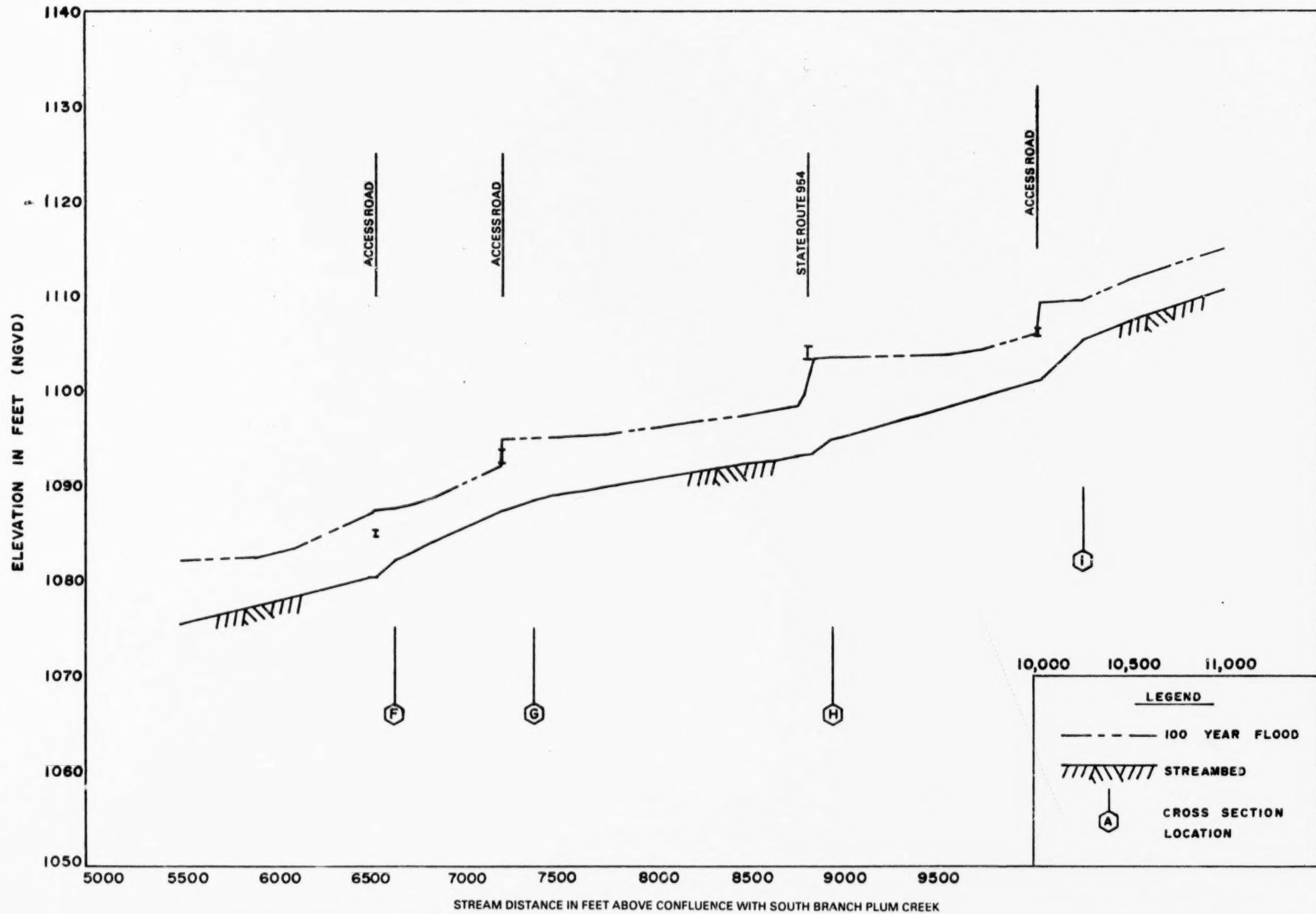
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FLOOD PROFILES

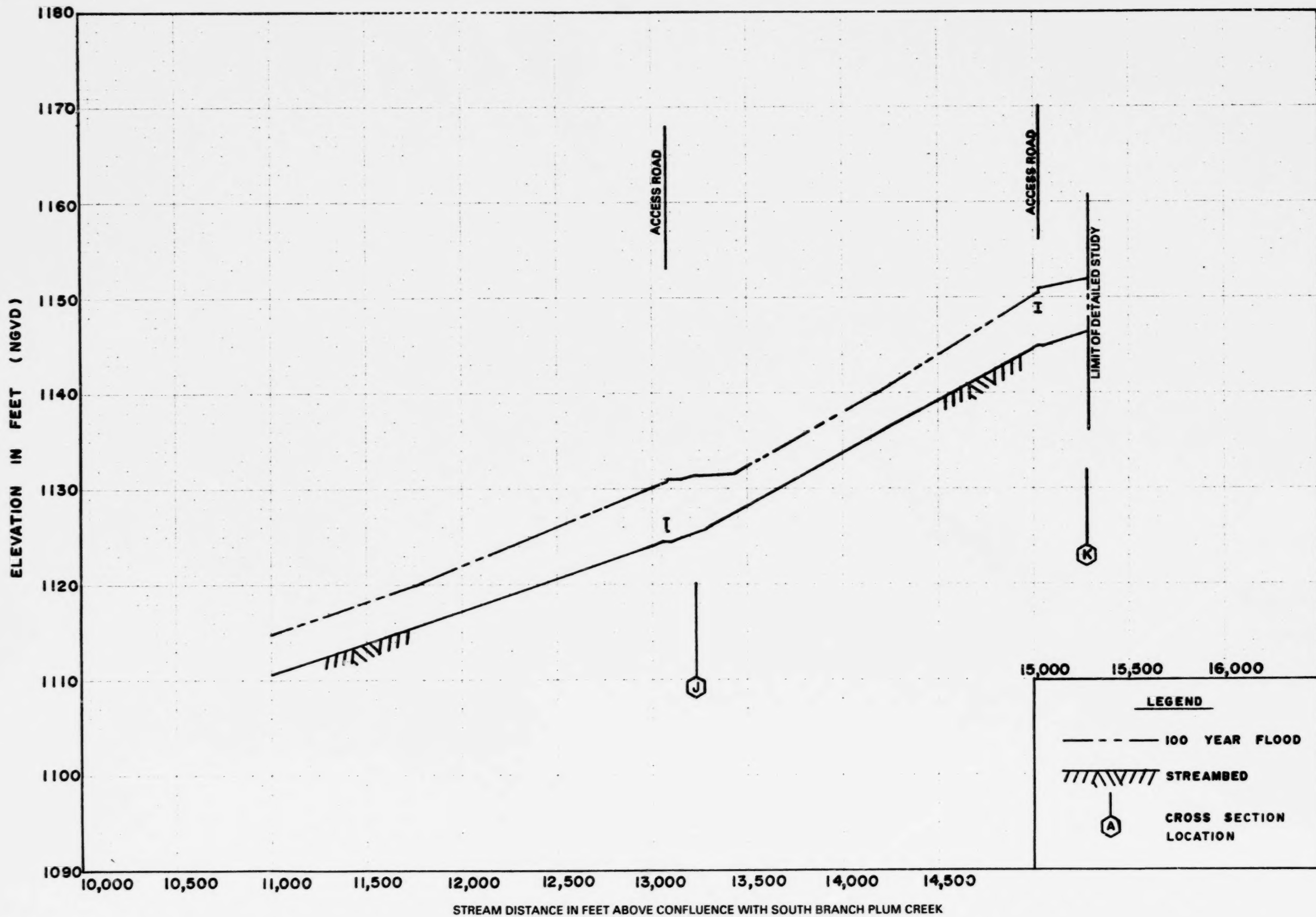
SUGARCAMP RUN

FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF WASHINGTON, PA
(INDIANA COUNTY)



FEDERAL EMERGENCY MANAGEMENT AGENCY
TOWNSHIP OF WASHINGTON, PA
(INDIANA COUNTY)

FLOOD PROFILES
SUGARCAMP RUN



FLOOD PROFILES

SUGARCAMP RUN

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF WASHINGTON, PA

(INDIANA COUNTY)

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